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# THE CENSUS OF 1900.

BY WILLIAM R. MERRIAM, DIRECTOR OF THE TWELFTH CENSUS.

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WHILE it is undeniable that the average American citizen is enthusiastic concerning the future growth and prosperity of his country and is at times apt to indulge in more or less patriotic endeavor in this direction, it is seriously to be questioned whether the United States Marshals who took the first census of the United States, in the year 1790, had the slightest conception of what a great enumeration would mean at the approach of the dawn of the Twentieth Century. Primarily, the object of the census was to ascertain the population for the purpose of arranging an apportionment for representation in Congress. But, as the years have gone on, from a mere count of inhabitants the census has developed into a vast industrial and sociological undertaking.

For the first ten decades the census work was in charge of the head of the State Department, the United States Marshals arranging all the details and sending in the returns. In the year 1810 an attempt was made to ascertain the extent of the manufacturing industries of the country, but the results were so unsatisfactory that the inquiry was of little value. In the year 1850, however, a distinct change was made in the plan for doing the census work. The Secretary of the Interior was given charge of the whole undertaking, and a census board, consisting of the Secretary of State, the Attorney-General and the Postmaster-General, was instructed to prepare such schedules as might be necessary. The Board was further instructed to collect statistics in regard to mines, manufacturing establishments, agriculture, etc. From that date up to the present time the scope of each census has been enlarged. The most marked departure in the arrangements for collecting the manufacturing statistics was made by Gen. Francis A. Walker, one of the most eminent men

ever connected with census work. He originated the plan of withdrawing the manufacturing schedules from the enumerators in the largest cities of the Union, and of appointing special agents to gather the information required concerning manufacturing establishments in such cities. This plan resulted in securing by far the best statistics concerning industrial institutions ever before procured.

The legislation provided for the taking of the Eleventh Census involved a tremendous amount of work, more than most people appreciate; and the results, in view of the difficulties presented and the obstacles encountered, were remarkable. Mr. Porter was not appointed Superintendent until over two months after the passage of the Act, and he was pushed from the start on all sides. Congress submitted amendments to the Act just previous to the date fixed for the enumeration; and this materially added to the already overburdened schedules, and delayed their full tabulation and presentation. There were many obstacles that operated to block the project, and, in view of the numerous irritating conditions that arose, it was a miracle that the final outcome was so creditable. It is much easier to stand afar off and criticise, without a knowledge of the facts, than it is to accomplish the desired results. Mr. Porter burdened himself with a gigantic undertaking, and he is entitled to much consideration and commendation from his fellow-citizens.

The law of 1899 is a wide departure from any previous census legislation. The indications are that, in the decades that are past, as the time approached for making the required enumeration, the plan for doing the census work was always hastily devised, and thus a temporary and spasmodic atmosphere was given to the whole enterprise. It seems to have been the idea of those who shaped the census legislation in the past that the work did not need any well-defined plan, but that a large temporary force could be gathered together, and the information concerning population, agriculture and manufacturing industries and other subjects collected and reported to the country within a short space of time. The results, however, were extremely unsatisfactory to all who are really interested in a creditable piece of work. The Act under which the Twelfth Census is being operated is decidedly the best law that has ever been enacted for taking a census. The executive and statistical branches of the work are so sharply defined that it

is possible to make the individual in charge of each inquiry responsible for lack of method or tardiness in securing results.

The Director has general charge of the administration, and under him is an Assistant Director, who is a trained statistician, and to whom is assigned the general oversight of the various statisticians employed by the Bureau. Five Chief Statisticians are provided for, and a certain line of inquiry has been assigned to each one, and he is to be held responsible for his particular branch of the work. Each Chief Statistician has been selected for his well-known ability in handling the particular subject assigned him, each one having a reputation for capacity and thoroughness in his special line of inquiry. The Act creating the Bureau, for the first time in the history of census legislation, prescribes absolutely a limited time in which to finish certain branches of work. Two years have been allowed for gathering, tabulating, printing and binding the statistics relating to the four most important subjects with which the census deals, namely, population, vital statistics, agriculture, and manufacturing industries. The time required for completing and publishing the Census Reports of 1890 was something like seven years. It seems a herculean undertaking to accomplish in two years a task which required seven years in the last census. However, if it is a possible thing, it will be done within the time prescribed.

It is estimated that, for the purpose of transferring the enumerators' sheets to cards, and of counting the same by means of the Hollerith machines, at least twenty-eight hundred people will be employed at one time. To secure a clerical force capable of doing the work, a system of examination was inaugurated in Washington during the early part of the year, and has been in operation up to the present date, and is likely to continue for some months to come; part of the examinations are being held in Washington and part in various sections of the country. The examinations are largely in subjects intimately connected with the census work. Thus far about one-half of the people applying have failed to pass the prescribed examination. There has been more or less criticism, upon the part of different papers throughout the country, in regard to this plan of selecting the clerical force. The indications at this time are that the persons who have been appointed from an eligible list made up in this manner will prove to be excellent clerks. The plan of competitive examinations

has not been adopted, as it was not deemed practicable to examine the large number who would naturally desire to be considered if competitive examinations were held; and the Bureau has not the necessary machinery at hand, nor would it be of any special advantage, to undertake to collect the clerical force in this way.

The plan heretofore in use for making the enumeration by means of supervisors will be pursued in this census. Nearly three hundred supervisors, the number allotted by law, have been selected to take charge of the work in the various census districts throughout the country, and to designate suitable persons to act as enumerators and make the proper returns to the Census Office. Much of the work of the office will depend upon the Supervisors and the promptness with which they make returns. It is hoped that by appointing them early there will be ample time to instruct them in their duties, and to give them the fullest insight into the labors that will be required of them. They are expected to submit to this office lists of the enumerators who will be required in their respective districts; the total number needed to do the work will be about fifty thousand men. This office will endeavor, through the Supervisors, to instruct the enumerators in their immediate line of work, so as to secure the most reliable returns. It is the great weakness in census work that the Director is compelled to collect men to do important service who are to be only temporarily employed. Useful and capable men are not willing to leave places of a permanent character to accept positions that will last but a few days.

In order to complete the work within the allotted time and in a proper manner, it was deemed absolutely necessary to secure a building large enough to accommodate the enormous force which will be employed. It has been the plan, heretofore, in taking the census, to do the work in different buildings, and in some cases the work was done away from Washington, thus making it impossible to handle efficiently the large number of people required. The Superintendent of the last census was compelled to scatter his force among nine or ten buildings, which made it impossible to obtain the best results. The Census Office, after all, is nothing but a great statistical bureau, and in the employment of so large a force it is necessary to pursue the same general tactics of administration as are usually observed in industrial institutions. From the best possible *data*, it was determined that at least 2,800

to 3,000 clerks, messengers and other employees would be required to do the preliminary work, and to complete and finish the undertaking within the two years prescribed by law. It was determined, therefore, to make arrangements with some of the capitalists of the city of Washington to provide a building such as the necessities warranted. It may be stated, in passing, that it was thought essential to have not only an administrative building, which might be set aside for the Director, the Assistant Director and the various members of the official staff, but also that there should be large rooms which would contain space enough for the clerks who are to tabulate the returns.

The executive or administrative portion of the building will be two stories high. The main building will contain space for the clerks, vaults for storing the schedules, engine rooms, and printing department.

The large space in the single-story part of the building has been divided into two separate rooms; each of these rooms will hold about one thousand clerks. Between these two rooms will be the fire-proof vault above referred to, and also a room for storing the cards which are to be used in connection with the tabulating machine. There will be about 100,000,000 of these cards. It is proposed to employ about one thousand clerks in transferring *data* from enumerators' sheets to cards about three by six inches in size. This is done by first preparing a card for each person enumerated, showing all the characteristics of such person. The cards used for this purpose are printed with letters and symbols so arranged that by punching holes in the proper spaces we get the following information regarding each individual—race, sex, color, age, conjugal condition, birth-place of person, of father, mother, years in the United States, occupation, school attendance, etc. These cards, though only 7-1000 of an inch in thickness, would form a stack, if piled one on another, about nine miles high, and they will weigh about two hundred tons.

This transcript from the original returns of the enumerator to the punched card will be done with small machines, something like typewriters, called keyboard punchers. About one thousand of these will be used, and the entire work of transcribing the 75,000,000 or more individual records will be done in about one hundred working days, or nearly four months.

These punched record cards are then counted, or tabulated, in

the electrical tabulating machines. These machines are provided with a circuit-closing device, into which the cards are rapidly fed one by one. The holes in the card control the electric circuits through a number of counters, which will, as desired, count the simple facts as to the number of males, females, etc., or the most complicated combination which the statistician may ask for. After the cards for a given district are thus passed through the tabulating machine, we know the number of native-born, white males of voting age, the number of white children under five years of age born in this country with both parents native-born, or the number of such children with one or both parents foreign-born, or any other information contained in the enumerators' sheet which the statistician desires tabulated. In short, it is only necessary for the statistician to decide upon the information wanted, and for the electrician to make the proper connection from the counters and relays to the circuit-controlling device into which the cards are fed. The methods employed for checking the proper workings of the machines are ingenious and interesting. If the card is not completely punched, or not properly fed to the machine, or is placed upside down, or if some item has been overlooked, or, in fact, if everything is not all right, the machine refuses to work, and the card is rejected. Neither will the machine work if the circuit-controlling device is operated without a card in place. Such a machine also has the advantage that it will not make mistakes because it is tired or does not feel well, or because the weather is warm, or by reason of the thousand and one causes which will upset the human machine.

At least eight hundred clerks and messengers will be employed to tabulate properly the results derived from the punching machines. There will be, in addition, about five hundred clerks employed by the various statisticians and by the Appointment and Disbursing Division. The purpose now is to move into the new building soon after the first of January. The administrative portion of the building only will be occupied at that time. The main body of the clerks will not be put into service until about July 1, 1900, when the whole force will be marshalled for the work expected of it.

The printing office will also require quite a large force. The absolute necessity of having no delay with the printing and binding of the volumes necessary in order to carry out the general plan,

makes it requisite that the Bureau should have its own printing office, and it is confidently believed that facilities of this kind will result in materially hastening the publication of the results. Very few have the slightest idea of the enormous amount of material and printing required for the preliminary work in connection with the Census Bureau. Recently an order was given for the paper on which to print the documents for the Agricultural, Population and Manufacturing Division schedules. It was found that there would be needed for these particular branches more than 8,500,000 schedules. For the entire work 25,000,000 will be required. All of these schedules will have to be printed at the Government Printing Office, and be ready for packing so as to be forwarded to the Supervisors early in the coming year.

Such is, briefly, the plan outlined for carrying on what is called the administrative branch of the work.

The general scheme for the collection of the statistical information will be the important part of the inquiry, and it is being prepared more particularly under the staff of statisticians provided for in the Census Act. Statisticians, like physicians, do not always agree upon methods, and, while it is believed that the men who are selected for this work are the very best that can be obtained anywhere in this or any other country, there will probably be more or less criticism, upon the part of theoretical statisticians in different parts of the United States, on the plans adopted for obtaining the desired results. It is believed, however, that the methods which will be finally agreed upon will meet with the approval of the great number of men who give thoughtful attention to this particular branch of this great undertaking.

One of the chief difficulties in census work is the fact that the office has been merely temporary in character. At the close of each census the entire force has been relieved from service and scattered over the country. With the enactment of each law the Superintendent has had to select, in a short time, an entirely new and untrained force, with the exception, perhaps, of a few chiefs of division who had obtained employment in other departments of the Government, after severing their connection with the Census Bureau. This is the condition of affairs which confronts the officials in charge of the Twelfth Census, and it is one of the most serious obstacles with which we have to contend. It is impossible to obtain experienced help in the short time that is



allowed for testing the merits of each individual. Men are selected, as a rule, to do important work by reason of ability and long experience, and organization is of slow growth. We are compelled, in making up this force, to take hundreds of people about whose character, temperament and ability we have but very slight knowledge. Increased expense is incurred by reason of the rapidity with which the force is gathered. It would seem that if a permanent Census Bureau, or a Bureau of Statistics, were authorized, it would prevent these difficulties. Comparisons of the results of one census with those of another can only be satisfactorily obtained by having a uniform practice or plan of taking each particular census.

Under the Act creating the Twelfth Census Bureau, as remarked above, the four chief subjects, population, vital statistics, agriculture, and manufactures, will have to be completed within two years from June, 1900, and these will be known as the "Census Reports." As soon as the statistics under these heads have been completed, the Bureau is required to take up a great variety of special subjects, among which are the following—the insane, feeble-minded, deaf, dumb and blind; crimes, pauperism and benevolence, social statistics of cities; public indebtedness, valuation, and expenditure; electric light and power, telephone, and telegraph business, transportation by water, express business, and street railway, and mines and mining. These, when published, will be denominated "Special Census Reports."

The average American is, of course, very much interested in the number of our population, and especially so if he lives in a new town in the West, where growing cities offer inducements to new settlers and enhance the sale of town lots. It is not improbable that many of our citizens will be doomed to disappointment when the figures are announced. The distinguished statistician, Mr. Mulhall, in an interesting article in the October number of the REVIEW, estimates our population at 77,300,000. It is possible that he is correct, but it would seem by reason of the decrease in immigration, more particularly since 1893, that we shall hardly obtain the figure that he named. I should say that from seventy-three to seventy-four million is the utmost that we can reasonably expect. Let us trust, however, that Mr. Mulhall is right in his assumption.

While it is interesting to us to know that our country has

increased in population, a very important feature of this census will be the results of the inquiries concerning the agricultural and manufacturing industries of the country; and our commercial importance, as far as the other nations of the earth are concerned, must be judged by the information obtained concerning these sources of national wealth. It is confidently expected that the coming enumeration in these two important fields will show enormous growth, and will astonish, by their magnitude, the great trading nations of the civilized world. Over one hundred years of constitutional government finds the nation in the highest industrial condition known in its history.

The census, taken at the dawn of the Twentieth Century, marks the greatest epoch in our national life. The age of iron has come to a climax with a force almost dynamic. The world has witnessed the golden age of Augustus, the silver age of Elizabeth, the era of great wars and of wonderful progress in the arts and sciences; but as the Nineteenth Century culminates, behold! the age of iron and steam and electricity, telegraphs, sewing machines, telephones, automobiles; an age which is devoted to material development, to the accumulation of wealth and the up-building of vast enterprises, and which hails the advent of the uncrowned king of commerce, the consolidation of great corporate interests. High-water mark in our commercial and industrial life has been attained, and to that fact the vast enumeration to be taken next year will add its testimony. The work of the Twelfth Census will mark the industrial growth of the nation and be another mile-post in its marvelous history.

We contemplate with great content the evidence of material prosperity, and we pardon the good-natured and hopeful patriot who, in his civic pride, waxes enthusiastic over the substantial acquisitions to the wealth of the Republic. But there are some further inquiries to be made by the Census Bureau, which, when the figures are finally tabulated, may cause us to reflect whether, in our desire for "bigness," we are not rather losing than gaining in the higher attributes of national life, which, after all has been said and done, are the chief corner-stones upon which the fabric of the Government, if it is to last, must rest. In the enthusiasm incident to the wonderful commercial advancement that is likely to be shown as the century closes, ought we not to remember that there is much in our national existence which ought to receive

the thoughtful consideration of all patriotic citizens? Will, or will not, the special inquiries into the subjects more nearly related to our moral and intellectual life reveal tendencies that are detrimental to a loftier national existence? I do not pretend to answer that question, but it is well worth a serious thought. In the mad scramble for wealth, are the duties of citizenship neglected and a less pronounced interest shown in the establishing of a high standard of public service? Will the *data* concerning religious bodies show a marked increase in the number interested in church organizations? Will the inquiry concerning benevolent and charitable institutions demonstrate increasing solicitude for suffering humanity, which seems to be ever present in its most accentuated form as daily good fortune is nearest at hand? Tables will be printed showing our educational status, as indicated by our public school system and by our large universities. Undoubtedly, the end of the century will show extraordinary facilities for obtaining what we call an education, and the further fact that the number accepting the generous gifts of the State in this regard is on the increase. But will there be any evidence that the extraordinary opportunities offered to the young of the nation have furthered our advancement in public morals and set a higher standard of citizenship? We have much to reckon with connected with our method of life as a nation, as we approach the portals of the Twentieth Century; and, while congratulating ourselves that the most generous gifts have been vouchsafed to us, it is well to remember that a grand and enduring citizenship must rest upon something besides mere wealth. It must rest, if it is to endure, upon the moral and intellectual character of the masses as its corner-stone; and the real lover of his country is he who realizes and practises those virtues which result in a higher standard of national life.

May the great count of 1900 surpass all its predecessors, not only in exhibiting the magnitude of our earthly possessions, but in demonstrating as well that we have eclipsed all former periods in our history in attaining the higher moral standard absolutely essential to the permanency of the Republic.

WILLIAM R. MERRIAM.